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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,677	11/21/2005	Rudolf Beckmann	RPP-202	2418

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EXAMINER	
FORD, NATHAN K	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
08/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,677	BECKMANN, RUDOLF	
	Examiner	Art Unit	
	NATHAN K. FORD	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-55* is/are pending in the application.

4a) Of the above claim(s) *44-53* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-43,54 and 55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/10/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election

Applicant's election of claims 26-43 and 54-55 in the reply filed on May 28, 2008, is acknowledged. Because the applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The examiner accepts the inclusion of claims 54 and 55 to Group I. Claims 44-53 are withdrawn.

Claim Interpretation

The language of claim 26 invokes USC 112, sixth paragraph.

The *electrical means for igniting and sustaining the plasma* will be interpreted as being inclusive of both electrical connections and a high-frequency transmitter according to paragraph twenty-four of the applicant's specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 26-27, 29-30, 39, 41-42, and 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiki et al., US 2004/0244687, in view of Ishii et al., US 2003/0173030.

Claims 26-27, 29-30, 42, 54-55: Ichiki teaches the following:

- A high frequency plasma beam source (Fig. 1);
- A plasma chamber (1);
- Electrical means for igniting and sustaining the plasma comprising a high-frequency transmitter (20) and electrical connections (26);
- A metal extraction grid (4) disposed in the area of an outlet opening.

Ichiki's extraction grid is planar in shape; however, non-planar extraction grids are well-known in the art. For example, Ishii, disclosing a plasma processing apparatus, employs both convex and concave extraction grids to effect an improved plasma distribution, thereby demonstrating the art-recognized suitability of employing convex and

concave grids to attain divergent plasma distributions [0100-4]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to reconfigure the extraction grid of Ichiki to achieve the predictable result of improving the plasma distribution across a substrate.

Claim 39: Figure 5 of Ichiki delineates multiple gas sources. At least one of these sources can be used to provide a gas having a composition and temperature that would beget evaporation, as a recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations (*Ex parte Masham*, 2 USPQ2d 1647).

Claim 41: Ichiki discloses a coil (10) circumscribing the plasma chamber capable of effecting a magnetic field. Thus, the coil may be designated as a magnet and is capable of locking a plasma within its chamber accordingly; a recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations.

Claims 26 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oechsner, US 5,156,703.

Oechsner teaches a plasma beam source comprising a chamber for plasma (7), an extraction grid (1), and electrical means (3, 5) to ignite the plasma. The extraction grid is a mesh structure whose width and dimension are configured as changeable to achieve the desired plasma distribution (9, 12-22). Further, Oeschner discloses an equation which enables one to determine the value of the space charge zone (d) (6, 1-10). Thus, in light of this disclosure, it would have been obvious to one of ordinary skill to modify the mesh width in response to the determined value of the space charge zone, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215).

Claims 28, 37-38, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiki and Ishii in view of Betz et al., US 5,656,141.

Ichiki's substrate support is substantially planar. Betz, however, distributes a plasma beam across multiple substrates arranged on a domed surface (30) to facilitate a consistent and equal coating process (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the substrate support surface of Ichiki as a domed surface to achieve the predictable result of improving the regularity of the plasma distribution.

Claims 31-32 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiki and Ishii in view of Kumagai et al., JP 2001-210245, wherein machine translation is relied upon.

Ichiki does not configure the plasma apparatus with masks. Kumagai, however, discloses an ion source comprising an extraction grid (8) which delimits the boundary of the plasma chamber; below this boundary is a mask (7) disposed within the exit opening of the plasma chamber [0014]. The mask is provided with an electrical potential to control the plasma distribution [0039]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate an electrically connected mask within the opening of Ichiki's plasma chamber to enhance control over the plasma distribution.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ichiki and Ishii in view of Adler, US 4,587,430; also, claim 40 is unpatentable over Oechsner in view of Adler.

Ichiki and Oechsner are silent regarding the composition and width of the extraction grid. Adler discloses an ion implantation device comprising a non-planar extraction grid (26) consisting of tungsten and having a width of 1 mm; tungsten is capable of withstanding significant heat loading due to ion bombardment, and a small mesh width minimizes ion losses to the extraction grid (4, 66ff). For these reasons, it would have been obvious to one of ordinary skill in the art at the time the invention was made to compose Ichiki's extraction grid with tungsten and to configure its width to be 1 mm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan K. Ford whose telephone number is 571-270-1880. The examiner can normally be reached on M-F, 8:30-5:00 EDT. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland, can be reached at 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/N. K. F./

Examiner, Art Unit 1792

/K. M./

Primary Examiner, Art Unit 1792